PATENT COOPERATION TREATY

MRS BUCKS. 27/7/04

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

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26 JUL 2004
BOULT WADE TENNANT

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

	Date of mailing *(day/month/year)* 22.07.2004
Applicant's or agent's file reference TAB/59710001	**IMPORTANT NOTIFICATION**

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/GB 03/01678	24.04.2003	25.04.2002

Applicant
DE LA RUE INTERNATIONAL LIMITED et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international preliminary examining authority:	Authorized Officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Wicha, M Tel. +49 89 2399-7281

Form PCT/IPEA/416 (January 2004)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
TAB/59710001		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/GB 03/01678	24.04.2003	25.04.2002
International Patent Classification (IPC) or both national classification and IPC		
B42D15/00		
Applicant		
DE LA RUE INTERNATIONAL LIMITED et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
15.09.2003	22.07.2004
Name and mailing address of the international preliminary examining authority:	Authorized Officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Achermann, D Telephone No. +49 89 2399-2029

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB 03/01678

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1-4, 6, 9-17	as originally filed
5, 7, 8	received on 25.03.2004 with letter of 22.03.2004

Claims, Numbers

7-14, 15 (part)	as originally filed
1-6, 15 (part), 16-22	received on 25.03.2004 with letter of 22.03.2004

Drawings, Sheets

1/8-8/8	as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).

   ☐ the language of publication of the international application (under Rule 48.3(b)).

   ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   ☐ contained in the international application in written form.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority in written form.

   ☐ furnished subsequently to this Authority in computer readable form.

   ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

   ☐ the description, pages:

   ☐ the claims, Nos.:

   ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	4, 11-20
	No:	Claims	1-3, 5-10, 21, 22
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-22
Industrial applicability (IA)	Yes:	Claims	1-22
	No:	Claims	

2. Citations and explanations

   see separate sheet

Re Item V:

1 Reference is made to the following document:

D2=US-A-5 697 649.

In view of the amendments made in claim 1 (feature from the description), it has been found appropriate to cite this document of which the examiner was aware of. A copy of D2 is annexed.

2 The subject-matter of claims 1-3, 5-10, 21 and 22 is not new (Article 33(2) PCT).

Claim 1:
D2 discloses (see in particular col. 3 lin. 58-col. 4 lin. 13, col. 6 lin. 5-10, figures) a security substrate (14) comprising a transparent polymer carrier layer (12) bearing indicia (20) formed from a plurality of opaque and non-opaque regions and a clear transparent magnetic layer (22) supported by the carrier layer containing a distribution of particles of a flake nickel material (col. 4 lin. 9-13, col. 6 lin. 26-27), having a low coercivity of less than 100 oersteds (see eg. col. 3 lin. 58-col. 4 lin. 1: 5000 A/m = 63 oersteds) of a size and distributed in a concentration at which the magnetic layer remains clear and transparent.

As in D2 the preferred metallization process is sputtering, it is clear that flake nickel material is present.

The magnetic layer (22) of D2 is implicitly transparent. The passage col. 6 lin. 5-10 makes it plain: if the magnetic layer (22) was opaque, then the indicia (20) could be read in reflective light but not in transmitted light; the only possibility for the indicia to be read in transmitted light and not in reflective light is that the magnetic layer (22) is transparent.

Claims 2, 3, 5-10, 21 and 22:
The subject-matter of claims 2, 3, 5-10, 21 and 22 is known from D2.

3 The subject matter of claims 4 and 11-20 does not involve an inventive step in the

sense of Article 33(3) PCT, for the following reasons:

In claims 4 and 11-20 slight constructional changes in the security substrate are defined which come within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can readily be foreseen. Consequently, the subject-matter of claim 4 and 11-20 lacks an inventive step.

substrate comprising a transparent polymer carrier layer bearing indicia formed from a plurality of opaque and non-opaque regions and a clear transparent magnetic layer supported by the carrier layer containing a distribution of particles of a magnetic flake nickel material of a size and distributed in a concentration at which the magnetic layer remains clear and transparent.

The advantage of using a clear magnetic layer means that this type of magnetic feature can be incorporated into existing designs of security elements (threads) without affecting their visual appearance. This avoids the need to retrain the public and other handlers in recognition of the security features of security documents incorporating such elements. It thus allows for a seamless introduction of a magnetic feature, without the need to withdraw existing security documents. Both variations, with and without the magnetic feature, can be used side by side without confusion occurring.

Additionally, counterfeiters are not likely to be aware of the existence of the transparent magnetic features and therefore are less likely to try to include one in any counterfeits, thus making it easier to detect counterfeits.

A preferred embodiment of the present invention will now be described by way of example only, with reference to the accompanying drawings in which:-

Figures 1, 2, and 3 are cross-sectional side elevations of a substrate according to the present invention;

shown in Figure 20 but with the print features located within the demetallised region;

Figures 28 to 35 are cross-sectional side elevations of further alternative substrates incorporating optically variable devices;

Figure 36 is a cross-sectional side elevation of an alternative substrate to that of Figure 2, but with two demetallised layers, one on either side of the transparent magnetic media containing layer; and

Figures 37 and 38 are cross-sectional side elevations of further alternative substrates which are coded.

The present invention makes use of transparent magnetic materials that are now available from a number of suppliers. In the most basic form such transparent magnetic media comprises a polymeric film in which have been suspended magnetic particles of flake nickel magnetic material. The particles themselves are not colourless, but the degree of concentration is such as to allow the polymeric film to remain clear and transparent. Various other forms of transparent magnetic media are described in the prior art any of which would be suitable for the present application. In particular, the wider the thread, the lower the concentration of magnetic particles is required for accurate machine detection, due to the fact that the signal recovery is considerably differentiated from the normal cash processing system noise.

Figures 1 and 4 illustrate two embodiments of a substrate according to the present invention. In Figure 1 the substrate comprises a transparent polymer carrier layer (1) and a clear transparent, magnetic layer (2)

formed from magnetic particles which are suspended in a varnish which is printed or coated onto the carrier layer (1). The size and distribution of the particles is controlled so that the thickness of the magnetic layer (2) is irrelevant. The size of the particles may vary for different materials, examples of which are listed below. Although larger particles of these magnetic materials are lighter than smaller particles, the size must also be selected to enable painting or coating of the varnish containing the particles.

The invention requires the use of flake nickel magnetic materials, which have little or no magnetic remanence in the absence of an applied magnetic field, and preferably a coercivity of less than 100 oersteds, and more preferably less than 50 oersteds.

Suitable materials must have a sufficiently high saturation magnetisation. Flake nickel materials can be used with surprising advantages. These materials have a small coercivity and a highly detectable remanence, and still give a transparent film. As is well known, the thinner and more flake like the particles, the greater the anisotropy and therefore the resulting covercivity and remanence. The remanence is high enough to be detectable on inductive machine read heads, which are the older more well known machines, without the need for the newer magnet-resistive heads.

Suitable varnishes include 1462 from Luminescence, VHL 31534 from Sun Chemicals or 31833XSN, 20784XSN and 90838XSN, all from Coates

CLAIMS:

1. A security substrate comprising a transparent polymer carrier layer bearing indicia formed from a plurality of opaque and non-opaque regions and a clear transparent magnetic layer supported by the carrier layer containing a distribution of particles of a flake nickel magnetic material, having a low coercivity of less than 100 oersteds and a highly detectable remanence, of a size and distributed in a concentration at which the magnetic layer remains clear and transparent.

2. A security substrate as claimed in claim 1 in which the transparent magnetic layer comprises a varnish in which are suspended the magnetic particles.

3. A security substrate as claimed in claims 1 or 2 in which the transparent magnetic layer lies between the carrier layer and the indicia.

4. A security substrate as claimed in any one of the preceding claims in which the indicia are formed on the carrier layer and the transparent magnetic layer covers the indicia.

5. A security substrate comprising a clear transparent polymer carrier layer, bearing indicia formed from a plurality of opaque and non-opaque regions, which carrier layer contains a distribution of particles of a soft magnetic material of a size and distributed in a concentration at which the carrier layer remains clear and transparent.

6. A security substrate as claimed in any one of the preceding claims further comprising an additional layer of a transparent polymer laminated to the magnetic layer and/or indicia.

regions.

16. A security substrate as claimed in any one of the preceding claims further comprising an optically variable device.

17. A security substrate as claimed in claim 16 in which the optically variable device is formed by embossing a layer of embossing lacquer.

18. A security substrate as claimed in claim 16 in which the embossing lacquer lies between the magnetic layer and the indicia.

19. A security substrate as claimed in claim 17 in which the embossing layer lies between the transparent magnetic layer and a layer of high refractive index.

20. A security substrate as claimed in claim 17 wherein the embossing layer overlies the indicia.

21. An elongate security element made by the step of slitting the substrate as claimed in any one of the preceding claims in register with the indicia.

22. A security document comprising a paper or polymer substrate incorporating a security thread as claimed in claim 21.